CREATING A NEW INNOVATION MODEL IN EDUCATION AND INCREASING THE EFFECTIVENESS OF THE EDUCATION SYSTEM

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Abstract

Objective: The main purpose of this research is to determine the effect of human resources trainings used in enterprises on innovation. At the end of the research, the relationship between the dependent and independent variables is examined and it is aimed to form a resource regarding the effect of human resources trainings used in enterprises on innovation.
Method: There were 215 individuals determined by random sampling method among the machine mold spare parts and textile enterprises managers and employees operating in the field of Machinery and Textiles, registered in Bursa Chamber of Commerce and Industry, participated in the study. Then, these data were subjected to frequency, independent sample T-Test, Anova, reliability analysis, average and correlation analysis in SPSS 23.0 package program.
Findings: As a result of the analysis made in the research, it has been determined that the human resources training of the machine mold spare parts and textile enterprises managers and employees operating in the field of Machinery and Textiles, registered in Bursa Chamber of Commerce and Industry, has an impact on innovation.

Conclusion: Human resources training has an impact on innovation in businesses.

Keywords: Innovation, Human Resources, Education, Employee

1.Introduction

For twenty-first century people, all developed countries of the world are developing models on education system and lifelong learning in order to create a new approach and to

develop knowledge, skills and mindset. As a result of information and technological developments in the end of next 10 years, we can foresee that five million jobs will disappear and two million new jobs will be occured. These are professions that require innovation, knowledge economy and social intelligence. Science and technology, which has developed in a fast and astonishing way, pushes the business world and individuals to lifelong learning, change and innovation. (Özer, 2019).

While South Korea allocated $ 480 million to technology and innovation investments in 1980, it spent $ 10 billion, which was 20 times twenty years ago, in 2000, and thus managed to enter the developed countries class. (Oğuztürk, 2011).

When it comes to 2019, South Korea continues on its way in the Bloomberg innovation index. Germany, on the other hand, has reached the second rank with the work it has fulfilled in business and education. (haberturk.com, 2019).

Complexity, variability and uncertainties have increased the importance of innovation and traditional knowledge has lost its importance. Along with digital competence; problem solving, cooperation, innovation, and intercultural interaction are the desired qualities. Education directly determines life satisfaction and quality of life. Education provides competition and national development along with employment and growth. (Özer, 2019).

In addition, developments in the economic, social and educational fields create pressure on increasing educational efficiency. School boards and governments are implementing large-scale reforms by interfering with the existing education system. (Rikkerink et al., 2015).

The ever-increasing conditions that facilitate human life have led to the need for more information and innovation in humans. Despite all these developments, deficiencies seen in the field of innovation in recent years have led the attention to be focused on the education system all over the world and studies in this sense have gained speed. It is seen that meaningful and powerful studies to discover technological systems on learning and teaching knowledge are insufficient. (Oliver, 2016).

The biggest problem we face is innovation, which endangers future generations to be effective and successful with their current knowledge and skills. Many of the developing countries cannot give education an immediate priority as they are not aware of this. There has been a need for individuals who produce solutions with innovations to constantly changing processes and methods with the education they receive in our age. Developments in technology and production processes lead to the need for new professional skills. (Özer, 2019; Stephan, Mary and Oluseye, 2017).

Individuals' free thinking, imagination and discovery skills are not supported in developing countries. Therefore, it is seen that innovation studies are not realized. In the twenty-first century, educators and politicians must develop systems, processes and models that are innovative and imaginative, taking into account future needs. Successful education depends on determining training needs and qualifications and supporting lifelong learning and development. Preparing individuals for innovative processes with applied trainings

increases the efficiency. Developed countries have provided university and industry cooperation starting from secondary education to increase educational efficiency and productivity. (Özer, 2019)

Universities should be able to raise the wick of economic and social development by raising young thinkers, questioning and innovative young people, affecting socio-cultural and economic texture. (Sakınç and Bursalıoğlu, 2012).

Changes to be made in the university system will positively affect the interests of all parties as a result of working together with different institutions determined in line with the needs. (Tømte, 2018).

In all education classes, innovation studies can be realized by developing individuals' free thinking, discovery and innovative imaginations.

1.1. Introduction to Human Resources Management

In the literature, human resources management is stated as an output. With human resources management, it is desired to ensure competitive advantage and sustainability of human resources. In addition, the sustainability of the competition has been linked to the value, features, rarity and inimitability gained. Different organizations have also led to the need for different employees who show different behaviors. This development shows the importance of horizontal and vertical alignment. (Demirtaş, 2014).

Human resource management activities are recruitment and selection, performance measurement, training and management, compensations and earnings. All these activities require knowledge and professional expertise. Human resources can reach their business goals by developing the knowledge, skills and abilities of the employees with consistent policies and practices. (Huselid, Jackson and Schuler, 1997).

In today's conditions, it has been compulsory for companies to produce in line with customer demands in order to compete. Businesses can continue their lives with customer demands, cooperation, participation, process improvements and continuous training. (Sabuncuoğlu, 2000).

The human mind does not work specifically, but social and industrial information processing is possible. Employees should be handled not only scientifically but also psychologically. The flow of consciousness, conditional reflex and instinctual impulse may describe man, but man is more than all of them. (Mayo, 1923).

This age’s enterprises that we are in have made it an engine that determines the development of the economy. Access to information, flexibility, meeting customer demands, access to new markets, protecting existing markets and efficient use of assets are the determining factors for the future of businesses (Çatı, Çömlekçi and Zengin, 2015).

Managers, on the other hand, have no strict or precise rules that can guide them when making decisions. Under the same circumstances, managers almost never made the same decisions. Considering the changing conditions to make the right decisions it is possible with flexibility, adaptation in every environment, to know how to use experiences and

abilities. It is aimed to produce more and higher quality with the same working effort. (Fayol, 1987). As people's demands increase day by day, it is expected to produce flawless, quality, aesthetic and new products in a shorter time.

When the human resources is managed properly, it is possible to use the existing resources effective and efficiently. Human Resources Management (HRM) is to ensure efficiency by systematically evaluating material resources and qualified human resources in the light of purposes. In addition, meeting the needs of human resources and ensuring their professional development are mentioned as two important factors. (Kaya and Kesen, 2014). For enterprises it would be appropriate to consider the educated and experienced human resources as a valuable mine.

The rapid advancement of science and technology in today's conditions is developing in the production process by the gain of brain power rather than the human power of the human factor. Changes in science, technology and management show that competitive advantage is possible with trained human resources. The ability of businesses to gain power and competitive advantage in global world markets depends on their ability to employ human resources effectively and efficiently with their educated theoretical and practical training. (Dolgun, 2011).

1.2. Human Resources Training

In the information society period, mentality has come to the forefront, creating ideas and knowledge has gained importance. Education has changed in order to gain knowledge, self-confidence and ability to explore, research, create and use existing knowledge in solving the problems encountered. (Koçel, 2014).

Education is a great balance at the center of life and when it is observed with an example; A business where a program is applied in line with the employees' talents, employees are given the opportunity to work in jobs where they can enhance their abilities, training results are measured, and administrators provide continuity in the learning culture (Doğan & Demiral, 2008).

Specializing in information and information technologies increases the effectiveness of organizations, but the knowledge, skills and abilities gained as a result of employees leaving the job are lost. In addition, information is not concrete and clear in organizations, and is implicit in employees. Therefore, with the definition and classification of information, management can promote personal and professional development by promoting the sharing of implicit information. In the age of information management we are in, it has become imperative to produce, share and store information. Universities and businesses should work together in line with constantly changing demands. (Brewer and Brewer, 2010). First of all, educational institutions and enterprises can gain superiority only in a global and competitive environment by training innovative and open to change knowledge workers.

Businesses need new learning approaches to survive. Realistic production trainings, modernized learning processes, new production knowledge and technology, problem solving, innovative and systematic thinking ability can be expressed as new learning approaches. (Abele et al., 2015). Having trained and motivated human resources has been the main engine of development and change. Training and development require extensive and intensive investments. It is stated that by creating a common language with continuous education and reward system, problem solving skills are gained. (Akın, 2001).

It was determined that the training time, employee motivation and simulator method of the employees increased the efficiency of the training. (Chatzimouratidis, Theotokas and Lagoudis, 2014). The training enables the employees to reach their goals by changing and improving their knowledge, behavior and abilities. Education is the management tools that increase the effectiveness, efficiency and efficiency of the institution. Training enables managers to gain experience, talent and success for the continuation of their success. (Durukan, 2003). Education increases the knowledge and skills of individuals and creates job opportunities within the company, but it is the future investment tool of employers and employees. Therefore, the employer also has long-term, loyal and high-performance human resources. (Boone and Kurtz, 2013).

The rapid development of the service sector has enabled human resources education to gain importance. Increasing and differentiating consumer demands every day made human resources education compulsory. Global competitive conditions resulting from developing and changing technology have increased the importance of factors such as quality production, efficiency and performance, and the aim to achieve goals and targets in a short time has expanded human resources education. The process of human resources education begins with the determination of training needs. The process continues with the determination of the training methods and the trainer. The process should not be completed with the training, but the training should be evaluated. (Dolgun, 2011).

Career capital consists of the individual's knowledge, skills, competences, identity, career choices, motivation and energy factors. Environmental demands enable and motivate individuals. Continuously learning and updating the behavioral information and skills needed by employees increases career capital. (Sutherland, 2015). The motivational and mental effort of the individual increases and facilitates the learning activity. (Van Heerden and Theron, 2014). In the emerging competitive environment, it has become imperative to constantly develop new products, processes or services and to provide more functionality to consumers within a few years. In addition to all these, business development, revenue growth, products, services and processes that can lead to new developments enable the competitive advantage to be maintained. (Lotz and Merwe, 2013). Enterprises should be able to respond to the society they are in and new demands from the market and to develop new products. Thus, customer satisfaction, loyal customers, business partnerships, better relationships and access to public funds can be achieved. (Venter, 2014).

It transforms its inventions and discoveries produced in a business and public laboratory into products with high added value, and it develops at the rate it brings to the market and gains a competitive advantage. Cultural values, norms, lifestyles, customs and customs should always be determined in human resources education. Individuals who are trained should be supported to create innovative ideas and thoughts and transfer them to the business process. (Eren, 2013). Highly skilled individuals with unique abilities should be selected for recruitment. A unique human capital pool should be created. Along with the training of unique individuals, group designs, talent development and empowerment, businesses with strong social communication cannot easily be imitated by their competitors. (Huselid, Jackson and Schuler, 1997). Businesses that cannot be easily imitated continue to profit even though they have gained a competitive advantage. Not being easily imitated; means a high global advantage for businesses.

1.3. Innovation Definition

The concept of innovation derives from the Latin word 'innovatus'. (Ertürk, 2014). In Mulgan and Alburg (2003), he states innovation as new products, services and methods that enable the development of innovative products with high added value. (Mulgan, G. and Albury, 2003). Peter Drucker has expressed innovation as a new product, service, learning and application. (Drucker, 1998). Economists, academics and politicians have started to give importance to innovation since 1990s (Asheim, Markus and Trippl, 2015). Freeman Lundvall (1992), Nelson (1993), Nelson and Rosenberg (1993) conducted the first research in the field of national innovation system. Freeman (1987,1995) first expressed the concept of "innovation system". In our era of product and service production, information has become complicated by R&D and technology intensity (OECD, 1999). It is imperative that countries interact with factors such as human and social capital, trade and intellectual property in order to acquire advanced technology and produce information. (Feinson, 2003). Lundvall mentioned the importance of university, industry, public and R&D institutions to cooperate together. Learning factor has been the main economic force. (Lundvall, 2007a). Innovative leaders, managers and educated human resources in cooperation strengthen the innovation process. (Lindgren, 2012).

Innovation, which has gained utmost importance for all sectors in our age, has led many institutions and organizations to work hard on it. As a result of innovation studies, it has been observed that human resource, which is the most important determinant factor, is not effective and efficient due to routine, repetitive and similar processes. Failure to establish new outputs, processes and methods whose outputs are unpredictable is the beginning of the end in global competitive conditions. Innovation is to combine new ideas, processes and methods with an expert way and turn them into products with high commercial value and added value. Innovation is formed with thought, by transforming ideas into ideas, determining the workable ones, carrying out studies and ensuring the continuity by evaluating the results. It is the implementation of new ideas and new ideas that provide

value increase for the product and the institution. When new thoughts are accepted, they replace the thoughts that were previously presented. Innovation means creating new knowledge, skills, processes, methods, products and services. Innovation depends on the formation of two factors as idea creation and idea analysis.

Creating Ideas: It is the creation and development of human resources.

Idea Analysis: It is the testing and evaluation of the ideas created.

When the individuals who perform innovation are examined; it is seen that their personal characteristics are similar. They are individuals who think to eliminate the problems and deficiencies that occur, evaluate the applicability of the ideas formed to the processes and methods, and ensure the adoption of new technology. Innovation is realized by determining the problem of human resources and revealing the causes of the problem. When it is considered, all of the available human resources do not have an innate innovation mindset and studies should be carried out to ensure that they develop within this framework. (Ersan, 2013).

Along with globalization, businesses and countries open to all world markets and innovate in order to maintain or improve their current position in the conditions of rapid change and competition. The entire world carries out innovation activities in order to realize factors such as sustainable development, increase in social welfare, employment, international competition, increase product and service quality. Innovation increases the welfare level by meeting all needs of the individual and society. Innovation means turning new ideas into technical and commercial position. Creating new things means inventing, while producing something that is not produced or differentiating what is produced means innovation. In addition, innovation envisages commercialization. (Güler and Kanber, 2011).

The innovation process is seen as an applicable discipline by making the conditions favorable. In order to create innovative processes, it is essential for leaders to develop knowledge, provide resources, creating effective management, respect for employees, self-motivation, encouragement and enthusiasm. In a study carried out in 300 German companies, the freedom of employees and the leadership of managers were seen as the main determinants of innovation. (Naidoo, Hewitt and Bussin, 2019). Ideas that enable the development of information and technology are created by human capital. By losing its capital and property power, it was replaced by ideas and information. Scientific knowledge will encourage managers, customers and social media innovations that can respond to changing technology in our ever-increasing world. (Callaghan, 2017).

Organizations that ignore the needs and social interests of the society will lose consumer support and will lose their reputation due to the boycotts they face. (Benna, Abratta and O'Learyb, 2016). Strategies of businesses to seek excellence, discovery, transfer knowledge and show the success of institutions may be insufficient to meet the needs. Inspiring individuals to be done is that discoveries are likely to occur with education that is relevant to their interests. (Bevelandera et al., 2015). Employees are over-managed and have little

freedom, so this prevents them from being innovative. However, managers who give their employees a high level of freedom can achieve high performance by providing job satisfaction and motivation. (Gilbert and Sutherland, 2013). The Oslo guide was mentioned in 2006 as innovation in industry, organization, ties and the market. When innovation products are evaluated, it was seen that they were created as a result of 99% development and 1% discovery. (Oslo Guide, 2006).

2. Method

2.1. Purpose and Scope of the Research

In this study, it is aimed to evaluate the machinery and spare parts and textile companies operating in the large-scale Machinery and Textiles registered in the Bursa Chamber of Commerce and Industry, which has the possibilities and possibilities for the management of innovation and education, which have come to the fore recently. The level of analysis of this research will be investigated whether the managers and employees of these enterprises are differentiated within the framework of demographic information of their views on the impact of human resources training on innovation.

2.2. Research Method

In the study quantitative research methods were used (H. Thomas Hurt, Katherine Joseph and Chester). The Individual Innovation scale developed by D. Cook (1977) was found to be Cronbach's Alfa (0.890), which was translated and translated into Turkish by Sarıoğlu (2014). It consists of a total of 42 expressions. The research is limited to 5-point Likert scale questionnaire questions and open-ended questions. (Kafadar, 2014: 10).

Machine Mold Spare Parts Industry INC. Its enterprise is consisted of 360 and Textile enterprise (serves domestic and international Weaving and Knitting Groups contract dye finishing services) is a total of 910 employees , including 550 managers and employees. The machine company was given 360 of the survey forms, but 105 forms were taken back. In addition to this, 110 forms returned to 250 forms in the textile business. For this reason, the number of samples had to be determined as 215. The data obtained in the study were analyzed using SPSS (Statistical Package for Social Sciences) for Windows 23.0 program. Number, percentage, average and standard deviation were used as descriptive statistical methods in the evaluation of the data. The t-test was used to compare quantitative continuous data between two independent groups, and the One-way Anova test was used to compare quantitative continuous data between more than two independent groups. Scheffe test was used as a complementary post-hoc analysis to determine the differences after the Anova test. Pearson correlation and regression analysis were used among the continuous variables of the study. The findings were evaluated at 95% confidence interval and 5% significance level.

2.3. Findings

Participants of our research; 51.2% Textile Enterprise (110 people), 87.4% (188 people) men, 23.3% (50 people) between the ages of 31-35, 61.9% (133 people) are married,

52.6% (113 people) high school graduates, 72.6% (156 people) nuclear family, 54.4% (117 people) average economic situation, 55.8% (120 people) spend most of their life abroad, 68.4% of the growth of the family, 91.2% mother is alive, 43.3% (93 people) primary school graduates, 74.0% (159 people) father right, 52.1% (112 people) father is a primary school graduate, 87.9% (189 people) mothers are housewives, 34.4% (74 people) father, worker, 90.7% (195 people) employees, 22.3% (48 people) performed their duties between 11-15 years, 26.0% (56 people) total professional seniority between 11-15 years, Between 0-10 people work in the department where 26.0% is available, 72.6% (156 people) are not trained for their location, 20.0% (43 people) received training in the workplace for their location, 19.1% (41 people) of training between 0-5 months for their location, 65.6% (141 people) businesses are not open to innovation, 96.7% (208 people) have no reason why their businesses are not open to innovation, 65.6% (141 people) have no reason why their businesses are open to innovation It has been identified.

Individual Innovation Scale (IIS) statements from managers and employees; 40.0% (86 people) say "I am open to new ideas", 34.9% (75 people) "Unanswered questions lead me to find a solution." expressly agree with, 34.0% (73 people) said, "I think my thoughts and behaviors are creative and original." they agree with it was found.

Table 1. Distribution of IIS Scores According to the Age of Managers and Employees (n = 215)

IIS	**Age**	**n**	Average **±ss**	KW	p
Resistance to Change	18-28	78	19,57± 5,93 **ac**	**13,374**	**0,004***
	29-39	81	21,56±5,56 **bc**		
	40-50	42	22,38± 6,87		
	51 and over	14	26,61 ±7,64 **c**		
IIS Total	18-28	78	56,58±12,39 a	**9,454**	**0,024***
	29-39	81	62,72± 11, 54		
	40-50	42	63,42± 15,05		
	51 and over	14	70,12± 12,51 b		

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 1, IIS score and personal and professional characteristics of employees and managers are compared. A significant difference was found between the ages of managers and employees, the resistance to change dimension and the total score of IIS. The Individual Innovation Scale (IIS) was found to be lower in the resistance to change dimension between the ages of 18-28 compared to those aged 29-39, 40-50 and 51 years old. It was found that the average score values of those between the ages of 29-39 in the IIS total were lower than those aged 18-28, 40-50 and 51 and over. (p<0.05).

Table 2. Comparison of IIS Scores According to the Marital Status of Managers and Employees (n = 215)

IIS	Marital Status	N	Average ±ss	U	Z	p
Opinion Leadership	Single	82	23,12 ±6,36	**2736,500**	**-2,042**	**0,041****
	Marital	133	24,68± 7,16			
Resistance to Change	Single	82	19,55± 5,05	**2607,000**	**-3,419**	**0,001****
	Marital	133	22,52± 6,85			
Risk Taking	Single	82	13,41 ±4,41	**2614,000**	**-3,872**	**0,000****
	Marital	133	15,72± 4,24			
IIS Total	Single	82	56,86 ±12,52	**2609,000**	**-3,673**	**0,002****
	Marital	133	63,46 ±12,93			

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 2, IIS score and personal and professional characteristics of the managers and employees are compared according to their marital status. A significant difference was found between the marital status of managers and employees and opinion leadership, resistance to change, risk taking sub-dimension scores and IIS total. Individual Innovation Scale (IIS); It was found that the average score values of the individuals who are single in opinion leadership, resistance to change, risk taking sub-dimension scores and IIS total dimension are lower than the married ones. (P <0.05).

Table 3. Distribution of IIS Scores According to Family Structures of Managers and Employees (n = 215)

IIS	Family Structures	n	Average ±ss	KW	p
Opinion Leadership	Nuclear family	156	31,83±7,46	**14,282**	**0,003***
	Extended family	43	35,88±6,26		
	Semi-extended family	14	33,67±6,13		
	Fragmented family	2	41,42±12,12		
Risk Taking	Nuclear family	156	31,79±8,51	**13,983**	**0,003***
	Extended family	43	37,20±8,81		
	Semi-extended family	14	31,42±5,01		
	Fragmented family	2	35,00±21,21		

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 3, IIS score and personal and professional characteristics of managers and employees are compared according to family structures. A significant difference was found between the family structures of managers and employees and the opinion leadership and risk taking sub-dimension scores. Opinion leadership was found to be lower than the other family types in the nuclear family and half-extended family in risk taking. (p<0.05).

Table 4. Distribution of IIS Scores According to How Many Years Managers and Employees Have Been Working (n = 215)

IIS	How Many Years Managers and Employees Have Been Working	n	Average ±ss	KW	p
Opinion Leadership	0-5	43	30,19±6,32	**14,273**	**0,047***
	6-10	43	33,28±7,67		
	11-15	48	33,33±6,83		
	16-20	34	33,57±8,42		
	21-25	19	35,48±6,00		
	26-30	12	33,57±8,47		
	31-35	7	35,71±10,59		
	36+	9	29,36±5,00		

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 4, IIS score and personal and professional characteristics were compared according to how many years they have been working for managers and employees. A significant difference was found between the leadership sub-dimension score according to how many years they have been performing the duties of managers and employees. The average score values of the managers and employees who have performed their duties for 36 years or more were found to be lower than the average score values in the other duties. (P <0.05)

Table 5. Distribution of IIS Scores According to the Economic Status of Managers and Employees (n = 215)

IIS	Economic Status	n	Average ±ss	KW	p
IIS Total	Very good	10	54,70±3,26	**10,037**	**0,040***
	Good	31	53,45±5,34		
	Middle	117	55,34±5,21		
	Bad	40	56,45±4,79		
	Very bad	17	53,05±4,62		

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 5, IIS score and personal and professional characteristics were compared according to the economic status of managers and employees. A significant difference was found between the economic status of managers and employees and the IIS total score. It was found that the average score values of managers and employees, whose economic status is very poor in total, are lower than other economic situations. (P <0.05).

Table 6. Distribution of IIS Scores According to the Duration of Any Training towards the Position of the Managers and Employees (n = 215)

IIS	**Duration of Any Training Towards their Position**	**n**	**Average ±ss**	KW	p
IIS Total	0-5 months	41	53,68±5,45	**10,850**	**0,028***
	1 year	5	59,80±5,76		
	2 years	2	55,50±0,70		
	3 years and over	11	52,45±5,41		
	Untrained	156	55,45±4,86		

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 6, IIS score and individual and professional characteristics of the managers and employees are compared according to their training period. There was a significant difference between the duration of any training for the location of the managers and employees and the IIS total score. It was found that the managers and employees who have any training period of 3 years or more for their location in the IIS total are lower than their training duration for any other location. (P <0.05).

Table 7. Comparison of the IIS Point Average According to the Opinions of the Managers and Employees Whether the Business They Work is Open to Innovation (n = 215)

BYÖ	**Opinions of the Managers and Employees Whether the Business They Work is Open to Innovation**	**n**	**Average ±ss**	U	Z	p
Resistance to Change	Yes	74	24,78±5,07	**4283,000**	**-2,160**	**0,031****
	No	141	23,29±5,12			

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 7, IIS score and personal and professional characteristics were compared according to whether managers and employees think that the business they work for is open to innovations. There was a significant difference between the managers and employees considering whether the business they work with is open to innovations and the sub-dimension of resistance to change. (P <0.05). It was found that the average score values of the managers and employees about whether they think they are open to innovation are lower than those who think.

Table 8. Distribution of Average IIS Scores According to the Reasons of the Business That the Manager and Employees Work is not Open to Innovation (n = 215)

IIS	**Reasons of the Business That the Manager and Employees Work is not Open to Innovation**	**n**	**Average ±ss**	KW	p
IIS Total	Not being informed enough	4	62,50±3,78	**7,748**	**0,021***
	No information is given	3	57,00±10,00		
	Untrained	208	54,89±5,05		

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 8, IIS score and individual and professional characteristics are compared according to the reasons why the business where managers and employees are not open to innovations. A significant difference was found between the reasons why the company where the managers and employees work is not open to innovations and the IIS total score. It was found that the average point values of the enterprises where the managers and employees are not open to innovation are lower than the other reasons. (P <0.05).

Table 9. Distribution of Average IIS Scores According to Where Manager and Employees Spend Most of their Lives (n = 215)

IIS	**Where Manager and Employees Spend Most of their Lives**	**n**	**Average ±ss**	KW	p
Resistance to Change	Village-Town	38	34,03±7,40	**8,836**	**0,012***
	District	57	35,64±7,16		
	Abroad	120	32,66±7,57		

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 9, IIS score and personal and professional characteristics are compared according to where the managers and employees spend most of their lives. A significant difference was found between where managers and employees spend most of their lives and resistance to change score. It was found that the average point values of resistance to

change related to the fact that managers and employees spend most of their life abroad are lower than other places. (P <0.05).

Table 10. Comparison of the IIS Scores According to the Living Status of the Mothers of Managers and Employees (n = 215)

IIS	Living Status of the Mothers	N	Average ±ss	U	Z	p
Resistance to Change	Alive	196	23,61±4,96	**1289,500**	**-2,218**	**0,027****
	Died	19	25,78±6,48			

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 10, according to whether the mothers of managers and employees are alive or not, their IIS score, personal and professional characteristics are compared. There was a significant difference found between whether the mothers of the managers and employees alive or not and the resistance to change sub-dimension score. It was found that the average score values of resistance to change of alive mothers lower than died mothers of managers and employees (P <0.05).

Table 11. Comparison of the IIS Point Average According to the Living Status of the Fathers of the Managers and Employees (n = 215)

IIS	Living Status of the Fathers	N	Average ±ss	U	Z	p
Opinion Leadership	Alive	159	35,70±7,98	**3124,500**	**-3,325**	**0,001****
	Died	56	40,17±6,73			
Resistance to Change	Alive	159	23,25±5,13	**3604,500**	**-2,124**	**0,034****
	Died	56	25,35±4,87			
Risk Taking	Alive	159	12,44±5,21	**3045,500**	**-3,535**	**0,000****
	Died	56	14,82±4,36			
IIS Total	Alive	159	54,44±5,21	**3334,500**	**-2,799**	**0,005****
	Died	56	56,82±4,36			

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 11, IIS score and individual and professional characteristics of the fathers and employees are compared according to whether their fathers are alive or not. There was a significant difference between whether the fathers of the managers and employees lived and the opinion leadership, resistance to change, risk taking sub-dimensions and IIS total score (p <0.05). The average score values of managers and employees whose fathers were alive were found lower than those who were died.

Table 12. Distribution of IIS Scores According to the Professions of the Fathers of Managers and Employees (n = 215)

IIS	Professions of the Fathers	n	Average ±ss	KW	p
Opinion Leadership	Retired	37	34,55±7,98	**9,279**	**0,010***
	Worker	74	31,60±6,91		
	Self-employment	59	34,52±7,13		
	Farmer	35	**30,49±6,44**		
	Officer	10	34,14±9,95		
Resistance to Change	Retired	37	35,94±7,00	**10,807**	**0,005***
	Worker	74	**31,53±7,92**		
	Self-employment	59	35,05±7,84		
	Farmer	35	33,23±5,73		
	Officer	10	35,00±6,47		
Risk Taking	Retired	37	35,58±8,71	**17,835**	**0,000***
	Worker	74	**29,55±9,02**		
	Self-employment	59	34,91±8,35		
	Farmer	35	33,71±7,08		
	Officer	10	32,66±7,50		

*Kruskal Wallis Test, p<0,05

** Mann Whitney U tetsi *** a,b.c Post host Benferoni, Different letters show the difference between groups

In Table 12, ISP score and individual and professional characteristics of the fathers and managers are compared according to their professions. There was a significant difference between the professions of the fathers of the managers and employees and opinion leadership, resistance to change, risk taking sub-dimensions. The average score values of managers and employees whose fathers are farmers are lower than those whose fathers are retired, workers, self-employed and civil servants, and those whose fathers are workers are lower than those whose fathers are retired, self-employed, farmers and civil servants. (P <0.05).

Table 13. Distribution of Individual's IIS Scores (n = 215)

	Average ±ss	Hydrangea	Minimum	Maximum
Opinion Leadership	24,03 ±6,86	25,00	7	35
Resistance to Change	21,35 ±6,35	21,00	7	35
Risk Taking	14,84 ±4,44	16,00	4	21

IIS Total	60,71± 13,13	61,50	23	90

Individual Innovation Scale (IIS) of managers and employees; average and standard deviation of opinion leadership dimension 24.03 ± 6.86, median 25.00, minimum 7, maximum 35, mean and standard deviation of change resistance dimension 21.35 ± 6.35, median 21.00, minimum 7, maximum 35, average and standard deviation of risk taking dimension 14.84 ± 4.44, median 16.00, minimum 4, maximum 21, IIS total average and standard deviation 60.71 ± 13.13, median 61.50, minimum 23, maximum was found to be 90.

Table 14. Demographic Status of Individuals Correlation of IIS Opinion Leadership Subscale

	Opinion Leadership	
	R	**p**
Age	0,193**	0,004
Marital status	0,146*	0,033
Family structure	0,201**	0,003
Father living situation	0,229**	0,001
Mother profession	-0,198**	0,004

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

When Table 14 is analyzed, with the leadership of opinion, the Individual Innovation Scale (IIS) subscale, managers and employees; between the ages (r = 0.193, p <.01), between marital status (r = 0.146, p <.01), among family structures (r = 0.201, p <.01), father's living status is positive (r = 0.229, p <.01), it is seen that there are negative and statistically significant relationships between the mother's profession (r = -0.198, p <.01). The fact that managers and employees are young or old, are married or single, whether their parents are separated, and whether their father is alive or dead has been positively associated with their leadership, and whether the mother has worked negatively or not.

Table 15. Demographic Status of Individuals IIS Correlation Resistance Sub-Scale Correlation

	Resistance to Change	
	r	**p**
Age	0,149*	0,029
Marital status	0,179**	0,008
Family structure	0,138*	0,043
Number of employees in the department	0,144*	0,035
Father living situation	0,171*	0,012

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

When Table 15 is analyzed, Resistance to Change, the Individual Innovation Scale (IIS) subscale and managers and employees; between the ages (r = 0.149, p <.01), between marital status (r = 0.179, p <.01), among family structures (r = 0.138, p <.01), among the number of employees in the department (r = 0.144, p <.01) and between father living situation (r = 0.171, p <.01) there are positive and statistically significant relationships.

Table 16. Demographic Status of Individuals IIS Risk Taking Subscale Correlation (n = 215)

	Risk Taking	
	r	**p**
Age	0,210**	0,002
Marital status	0,179**	0,008
Who took part in its growth	-0,137*	0,045
Father living status	0,246	0,000
Mother profession	-0,153	0,025

When Table 16 is examined, Risk Taking, which is the sub-scale of the Individual Innovation Scale, and managers and employees; between the ages (r = 0.210, p <.01), between marital status (r = 0.179, p <.01), between father living situation (r = 0.246, p <.01) positive, among who took part in their growth (r = -0.137, p <.01) and between the mother's profession (r = -0.153, p <.01) there are negative and statistically significant relationships

Table 17. Demographic Status of Individuals IIS Total Correlation (n = 215)

	IIS Total	
	r	**p**
Gender	0,145*	0,033
Age	0,144*	0,035
The Reason The Company Is Not Open To Innovations	-0,207**	0,002
Educational status of the mother	-0,153	0,025
Father living situation	0,205	0,003
Mother profession	-0,169*	0,013

When Table 17 is examined, the total of Individual Innovation Scale and employees; there was a positive relationship found between their genders (r = 0.145, p <.01), ages (r = 0.144, p <.01), and father living status (r = 0.205, p <.01), between the reason why the business he/she works for is not open to innovation (r = -0.207, p <.01) maternal education (r = -0.153, p <.01) and the mother's profession (r = -0.169, p <.01) it is seen that there are negative and statistically meaningful relationships.

3.2. Discussion

When the literature is analyzed, a small amount of studies were encountered in investigating the effect of Human Resources Management practices on innovation. (Chen

and Huang, 2009). This information is related to the limitations experienced in the research studies in our study. Major scientists have observed that traditional Human Resources Management practices do not support creativity that will drive innovation. According to the scientists in question, there is a need for an approach that encourages employees to share their knowledge and ensures that they actively support innovation. (Cabrera and Cabrera, 2005; Cabrera et al. 2006; Chang, Yeh and Yeh, 2007; Collins and Smith, 2006).

Thanks to the innovation realized in the production phase, the production of products has also become more possible. As a matter of fact, it is accepted that the innovations realized in the products and production stages are the innovations that direct and complement each other. (Damanpour and Gopalakrishan 2010).

On the other hand, it can be stated that the innovation realized in the production phase is considered as undertaking to reduce costs and that the enterprises provide significant opportunities to improve the expense position in the competitive environment (Bülbül 2004), which leads to more innovation in this field compared to other types of innovation. In our study, there was a difference found between demographic status and opinion leadership, resistance to change, risk taking and individual innovation in general.

Main theoretical researches of the employees in connection with their human resources training; The importance of training practices has been investigated in raising the level of employee capability and knowledge required for innovation (Kayabaş & Aydın, 2019; Beatty & Schneier, 1997; Cascio, 1990; Mabey & Salaman, 1995; Schuler & Jackson, 1987).

Major empirical studies have investigated the link between educational studies and the level of innovation, and found that educational activities have a positive effect on the level of innovation. (Mark & Akhtar, 2003; Ding & Akhtar, 2001; Işık & Türkmendağ, 2016; Jackson et al., 1989;. Raghuram & Arvey (1994) stated that they have reached the opposite direction in this research. It has been observed that it affects the level positively.

4. Results

Machine Mold Spare Parts and Textile enterprises managers and employees registered in Bursa Chamber of Commerce and Industry, operating in the field of Machinery and Textiles;

There was a positive relationship determined between the leadership of opinion and their age, marital status, family structures and whether their fathers were alive, and there was a negative relationship found between their mother's professions.

There was a positive result found between resistance to change, their age, marital status, family structures, the number of employees in the department, and whether their fathers were alive.

There was a positive result between found risk taking and their age, marital status, whether their fathers are alive and who are involved in their growth, and a negative result found between their mother's professions.

It is seen that there is a positive relationship between the total of the Individual Innovation Scale and their gender, age and whether their fathers are alive, and the reasons why the enterprises they work are not open to innovation, and their mothers' educational status and professions were found negatively and statistically meaningful.

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